

Claims

- [c1] 1. An optical platen used within an optical system of a fingerprint image capture apparatus, the optical platen comprising a contact face provided with a dull rough surface against which a finger is placed to pickup a fingerprint image, and an opposite viewing face exhibiting a smooth surface through which a fingerprint image light, resulted from a scattering of an incident light striking the contact face, emerges out of the optical platen to be captured by an image sensor.
- [c2] 2. The optical platen of claim 1, wherein the material of the optical platen includes transparent glass or plastics.
- [c3] 3. The optical platen of claim 1, wherein the contact face has an adequate roughness to respectively enable light scattering at the region of the contact face touched by a fingerprint ridge, and light scattering and refraction at the region of the contact face corresponding to a fingerprint valley, thereby the fingerprint ridge appears as a brighter region and the fingerprint valleys as a darker region on a formed fingerprint image.
- [c4] 4. The optical platen of claim 1, wherein the contact face and the viewing face are generally planar.
- [c5] 5. The optical platen of claim 1, wherein the optical platen has a general shape that is substantially flat.
- [c6] 6. An optical system for fingerprint image capture, the optical system being installed within an electronic device that includes an image capture window, the optical system comprising:
an optical platen, including a contact face provided with a dull rough surface against which a finger is placed to pickup a fingerprint image, and an opposite viewing face exhibiting a smooth surface, wherein the optical platen is mounted to the image capture window with the contact face outwardly oriented and the viewing face inwardly oriented;
a light source, placed proximate to the viewing face, and emitting an incident light that passes into the optical platen and strikes the contact face; and

an image sensor, placed proximate to the viewing face of the optical platen to receive an emerging image light resulted from a scattering of the incident light on the contact face against which the finger is placed.

- [c7] 7. The optical system of claim 6, wherein the material of the optical platen is made of transparent glass or plastics.
- [c8] 8. The optical system of claim 6, wherein the contact face has an adequate roughness to respectively enable light scattering at the region of the contact face touched by a fingerprint ridge, and light scattering and refraction at the region of the contact face corresponding to a fingerprint valley, thereby the fingerprint ridge appears as a brighter region and the fingerprint valleys as a darker region on a fingerprint image formed via the image sensor.
- [c9] 9. The optical system of claim 6, wherein the contact face and the viewing face are generally planar.
- [c10] 10. The optical system of claim 6, wherein the optical platen has a general shape that is substantially flat.
- [c11] 11. The optical system of claim 6, wherein the optical platen is further movably mounted to the image capture window in a manner to be capable of covering and uncovering the image capture window, thereby the optical system is enabled to be configured to a fingerprint image capture configuration when the optical platen covers the image capture window, and to a farther environment image capture configuration as a video camera optical system when the optical platen uncovers the image capture window.
- [c12] 12. The optical system of claim 6, wherein the light source includes light-emitting diodes (LED).
- [c13] 13. The optical system of claim 6, wherein the image sensor includes a charge coupled device (CDD), a complementary metal oxide semiconductor (CMOS) device, or a contact image sensor (CIS).
- [c14] 14. An application of an optical system according to claim 11, wherein the optical system is installed within a mobile phone to achieve an internal image

capture apparatus that is enabled to be configured to pickup either a fingerprint image or a farther environment image.